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WRITTEN OFFICE ACTION OF THE INTERNATIONAL SEARCH AGENCY (INSERT)

International File No.

PCT/AT2004/000270

Ad Item V.
Substantiated statement regarding novelty, inventive activity and industrial applicability; documents and explanations to support this statement

1 In the present Office Action, reference is made to the following document[s]:
D1: US 4 999 566 A (KUEHN WILLI), March 12, 1991 (03/12/1991)
D2: EP-A-0 883 231 (CANON KK), December 9, 1998 (12/09/1998)

2 INDEPENDENT CLAIM 1

2.1 The present application does not meet the requirements of Article 33(1) PCT, because the subject of claim 1 is not novel in terms of Article 33(2) PCT.
Document D1 discloses an autonomous switching converter,

- wherein an input voltage (u1) can be applied to a storage inductor (L1) by means of a first semiconductor switch (T1),

- the voltage drop of a sensor resistor (R4) that is connected in series to the switch (T1) is fed to a control electrode (10) of a second semiconductor switch (T2) as an indicator of the current through the inductor (L1) (see column 2, lines 9-29; column 3, lines 43-45),

- the input voltage is connected to the control electrode (4) of the first switch (T1) via a resistor (R2) and this control electrode can be grounded (3) via the switching path of the second switch (T2);

- after switching on the input voltage during a first conduction phase of a first duration of the first switch and an increase in current through the inductor, the second switch becomes conductive and breaks the contact of the first switch (see column 3, lines 35-58), whereupon the storage inductor then supplies energy into an output capacitor (C2) for a second duration via a rectifier diode (D1) (column 3, lines 59-64), until the capacitor (C1) of a series RC element (R3, C1) that connects the switching input of the second switch (T2) to the input voltage is charged, the contact of the second switch is broken and the first switch becomes conductive again (column 3, line 65 - column 4, line 10).

Therefore, the subject of claim 1 is not novel (Article 33(2) PCT).

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3 DEPENDENT CLAIMS 2-8

3.1 The present application does not meet the requirements of Article 33(1) PCT, because the subject of the claims 2, 5, 6 is not novel in terms of Article 33(2) PCT.

3.1.1 Document D1 (Fig. 1) also discloses that the rectifier diode (D1) galvanically connects the output capacitor (C2) to the storage inductor (L1).
Therefore, the subject of claim 2 is also not novel (Article 33(2) PCT).

3.1.2 Document D1 (Fig. 1) also discloses that the control input of the second switch (T2) is protected by means of a reverse pole protection diode (D3).
Therefore, the subject of claim 5 is also not novel (Article 33(2) PCT).

3.1.3 Document D1 (Fig. 1) also discloses that the output voltage (u2) is regulated at the output capacitor (C2) (see column 4, lines 11-17).
Therefore, the subject of claim 6 is not novel (Article 33(2) PCT).

3.2 The present application does not meet the requirements of Article 33(1) PCT, because the subject of the claims 3, 4, 7, 8 is not based on inventive activity in terms of Article 33(3).

3.2.3 Therefore, the subject of claim 3 differs from the prior-art D1 in that the storage inductor is formed by the primary winding of a transformer, at the secondary winding of which are connected the rectifier diode and the output capacitor.

Thus, the object to be accomplished by the present invention can be seen by: achieving a galvanic separation between the input voltage and the output voltage.

The solution suggested in claim 3 of the present application cannot be considered to be inventive (Article 33(3), PCT), because the use of a transformer as a galvanic separation between the input circuit and the output circuit for safety is a prior-art technique. Moreover, the person skilled in the art finds an obvious solution, for example, in the autonomous switching converter of D2 (Fig. 1), wherein the storage inductor is formed by the primary winding of a transformer (T1), at whose secondary winding are connected the rectifier diode (D1) and the output capacitor (C2). Therefore, the person skilled in the art would achieve the subject of claim 3 without inventive activity in order to solve the task set.

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3.2.4 The claims 4, 7, 8 do not contain any features that, combined with the features of any claim to which they refer, meet the requirements of the PCT regarding novelty or inventive activity.

Industrial Applicability

4 The autonomous switching converter of claim 1 can be used as current supply of electrical devices; therefore, claim 1 meets the requirements of the PCT regarding industrial applicability (Article 33(4) PCT).

Therefore, the remaining depending claims 2-8 also meet the requirements of the PCT regarding industrial applicability (Article 33(4) PCT).